10-18-1979

Test 1329: Case 4690 Diesel, Also Case 4694 Powershift Diesel, and Case International 4694 Powershift Diesel (12-Speed)

Tractor Museum
University of Nebraska-Lincoln, TractorMuseumArchives@unl.edu

NEBRASKA TRACTOR TEST 1329—CASE 4690 DIESEL
ALSO CASE 4694 POWERSHIFT DIESEL
ALSO CASE INTERNATIONAL 4694 POWERSHIFT DIESEL
12 SPEED

POWER TAKE-OFF PERFORMANCE

Power Hp (kW)	Crank shaft speed rpm	Fuel Consumption gal/hr (l/h)	lb/hp.hr (kg/kW.h)	Hp.hr/gal (kW.h/l)	Temperature °F (°C) Cooling medium	Air wet bulb	Air dry bulb	Barometer inch Hg (kPa)
MAXIMUM POWER AND FUEL CONSUMPTION								
Rated Engine Speed—Two Hours (PTO Speed—1000 rpm)								
219.62 (163.77)	2200	14.393 (54.485)	0.461 (0.280)	15.26 (3.006)	204 (95.6)	56 (13.2)	75 (23.9)	28.847 (97.411)
VARYING POWER AND FUEL CONSUMPTION—Two Hours								
192.64 (143.65)	2271	13.078 (49.505)	0.477 (0.290)	14.73 (2.902)	197 (91.7)	56 (13.3)	76 (24.4)	....
0.00 (0.00)	2389	3.682 (13.939)	....	....	176 (79.7)	55 (12.8)	74 (23.1)	....
99.35 (74.09)	2344	8.179 (30.963)	0.579 (0.352)	12.15 (2.393)	186 (85.3)	55 (12.8)	75 (23.9)	....
222.38 (165.83)	2200	14.473 (54.786)	0.458 (0.278)	15.37 (3.027)	200 (93.6)	56 (13.1)	76 (24.2)	....
50.35 (37.55)	2374	5.948 (22.515)	0.831 (0.505)	8.47 (1.668)	182 (83.1)	55 (12.8)	74 (23.6)	....
147.56 (110.04)	2320	10.462 (39.604)	0.499 (0.303)	14.10 (2.778)	190 (87.8)	56 (13.1)	76 (24.2)	....
Av 118.71	**2316**	**9.304**	**0.551**	**12.76**	**188**	**55**	**75**	**28.903**
Av (88.53)		***(35.219)***	***(0.335)***	***(2.514)***	***(86.9)***	***(13.0)***	***(23.9)***	***(97.602)***

DRAWBAR PERFORMANCE

Power Hp (kW)	Drawbar pull lbs (kN)	Speed mph (km/h)	Crank-shaft speed rpm	Slip %	Fuel Consumption gal/hr (l/h)	lb/hp.hr (kg/kW.h)	Hp.hr/gal (kW.h/l)	Temp. °F (°C) Cooling med	Air wet bulb	Air dry bulb	Barom. inch Hg (kPa)
Maximum Available Power—Two Hours 8th (3I) Gear											
189.75 (141.49)	11925 (53.04)	5.97 (9.60)	2199	3.98	14.169 (53.637)	0.525 (0.319)	13.39 (2.638)	193 (89.2)	43 (6.1)	53 (11.4)	29.010 (97.962)
75% of Pull at Maximum Power—Ten Hours 8th (3I) Gear											
154.65 (115.32)	9226 (41.04)	6.29 (10.12)	2291	2.87	12.047 (45.602)	0.548 (0.333)	12.84 (2.529)	188 (86.4)	47 (8.1)	55 (12.5)	28.962 (97.800)
50% of Pull at Maximum Power—Two Hours 8th (3I) Gear											
106.98 (79.78)	6195 (27.55)	6.48 (10.42)	2340	1.95	9.547 (36.139)	0.627 (0.382)	11.21 (2.207)	180 (81.9)	44 (6.4)	46 (7.8)	29.030 (98.030)
50% of Pull at Reduced Engine Speed—Two Hours 9th (3H) Gear											
106.97 (79.77)	6192 (27.54)	6.48 (10.43)	1871	1.87	8.231 (31.159)	0.541 (0.329)	13.00 (2.560)	179 (81.4)	50 (10.0)	57 (13.6)	29.025 (98.013)
MAXIMUM POWER IN SELECTED GEARS											
166.25 (123.97)	24564 (109.27)	2.54 (4.08)	2265	14.77	2nd (1I) Gear			176 (79.7)	40 (4.4)	41 (5.0)	29.000 (97.929)
182.35 (135.98)	23207 (103.23)	2.95 (4.74)	2201	10.93	3rd (2L) Gear			187 (86.1)	40 (4.4)	41 (5.0)	29.000 (97.929)
187.55 (139.85)	21323 (94.85)	3.30 (5.31)	2200	8.67	4th (1H) Gear			191 (88.3)	42 (5.6)	50 (10.0)	29.040 (98.064)
192.40 (143.47)	17439 (77.57)	4.14 (6.66)	2199	6.21	5th (2I) Gear			192 (88.9)	41 (5.0)	49 (9.4)	29.050 (98.097)
192.81 (143.78)	16449 (73.17)	4.40 (7.07)	2199	5.62	6th (3L) Gear			192 (88.9)	41 (5.0)	49 (9.4)	29.050 (98.097)
194.96 (145.38)	13883 (61.76)	5.27 (8.47)	2200	4.56	7th (2H) Gear			193 (89.4)	40 (4.4)	48 (8.9)	29.050 (98.097)
195.60 (145.86)	12292 (54.68)	5.97 (9.60)	2200	3.94	8th (3I) Gear			191 (88.3)	40 (4.4)	47 (8.3)	29.060 (98.131)
193.71 (144.45)	9638 (42.87)	7.54 (12.13)	2201	2.99	9th (3H) Gear			192 (88.9)	43 (6.1)	52 (11.1)	29.030 (98.030)

Department of Agricultural Engineering

Dates of Test: October 18-26, 1979

Manufacturer: J. I. CASE COMPANY, 700 State Street, Racine, Wisconsin 53404

FUEL, OIL AND TIME: Fuel No. 2 Diesel **Cetane No.** 49.0 (rating taken from oil company's inspection data) **Specific gravity converted to 60°/60° *(15°/15°)*** 0.8444 **Fuel weight** 7.031 lbs/gal *(0.843 kg/l)* **Oil SAE** 30 **API service classification** SE-CD **To motor** 5.640 gal *(21.349 l)* **Drained from motor** 5.362 gal *(20.295 l)* **Transmission and hydraulic lubricant** Case TFD fluid **Final drive lubricant** Case FDL fluid **Total time engine was operated** 34.5 hours.

ENGINE: Make Case Diesel **Type** six cylinder vertical with turbocharger and intercooler **Serial No.** 10178781 **Crankshaft** lengthwise **Rated rpm** 2200 **Bore and stroke** 4.625″ × 5.0″ *(117.5 mm × 127 mm)* **Compression ratio** 15.8 to 1 **Displacement** 504 cu in *(8259 ml)* **Starting system** 12 volt **Lubrication** pressure **Air cleaner** two paper elements with aspirator **Oil filter** two paper cartridges **Oil cooler** engine coolant heat exchanger for crankcase oil, radiator for hydraulic and transmission oil **Fuel filter** two paper cartridges **Muffler** vertical **Cooling medium temperature control** two thermostats.

CHASSIS: Type four wheel drive with duals **Serial No.** 8854444 **Tread width** rear 76″ *(1930 mm)* to 139″ *(3530 mm)* front 76″ *(1930 mm)* to 139″ *(3530 mm)* **Wheel base** 102″ *(2591 mm)* **Center of gravity** (without operator or ballast, with minimum tread, with fuel tank filled and tractor serviced for operation) Horizontal distance forward from center-line of rear wheels 55.7″ *(1415 mm)* Vertical distance above roadway 45.5″ *(1156 mm)* Horizontal distance from center of rear wheel tread 0″ *(0 mm)* to the right/left **Hydraulic control system** direct engine drive **Transmission** selective gear fixed ratio with partial (3) range operator controlled powershift **Advertised speeds mph *(km/h)*** first 2.0 *(3.2)* second 2.7 *(4.3)* third 3.1 *(5.0)* fourth 3.4 *(5.5)* fifth 4.2 *(6.8)* sixth 4.4 *(7.1)* seventh 5.2 *(8.4)* eighth 5.9 *(9.5)* ninth 7.4 *(11.9)* tenth 9.9 *(15.9)* eleventh 13.3 *(21.4)* twelfth 18.2 *(29.3)* reverse 3.4 *(5.5)*, 5.2 *(8.4)*, 7.4 *(11.9)*, 18.2 *(29.3)* **Clutch** multiple wet disc hydraulically operated by foot pedal **Brakes** multiple dry disc hydraulically operated by foot pedal **Steering** hydrostatic for front wheels, electro hydraulic for rear wheels, front and rear wheels may be steered independently or together **Turning radius** (on concrete surface with front-wheel steering) with duals, right 330″ *(8.38 m)* left 330″ *(8.38 m)* with singles, right 287″ *(7.29 m)* left 287″ *(7.29 m)* (on concrete surface with four-wheel steering) with duals, right 211″ *(5.36 m)* left 211″ *(5.36 m)* with singles, right 175″ *(4.45 m)* left 175″ *(4.45 m)* **Turning space diameter** (on concrete surface with front-wheel steering) with duals, right 689″ *(17.50 m)* left 689″ *(17.50 m)* with singles, right 603″ *(15.32 m)* left 603″ *(15.32 m)* (on concrete surface with four-wheel steering) with duals, right 459″

LUGGING ABILITY IN 8th (3I) GEAR

Crankshaft Speed rpm	2200	1983	1759	1538	1316	1093
Pull—lbs *(kN)*	12292 *(54.68)*	13097 *(58.26)*	13639 *(60.67)*	13658 *(60.75)*	12963 *(57.66)*	11428 *(50.84)*
Increase in Pull %	0	7	11	11	5	-7
Power—Hp *(kW)*	195.60 *(145.86)*	187.30 *(139.67)*	172.60 *(128.71)*	151.05 *(112.64)*	123.01 *(91.73)*	90.61 *(67.57)*
Speed—Mph *(km/h)*	5.97 *(9.60)*	5.36 *(8.63)*	4.75 *(7.64)*	4.15 *(6.67)*	3.56 *(5.73)*	2.97 *(4.79)*
Slip %	3.94	4.17	4.48	4.48	4.17	3.70

TRACTOR SOUND LEVEL WITH CAB	dB(A)
Maximum Available Power—Two Hours	78.0
75% of Pull at Maximum Power—Ten Hours	78.0
50% of Pull at Maximum Power—Two Hours	77.5
50% of Pull at Reduced Engine Speed—Two Hours	76.0
Bystander in 12th (4H) gear	86.0

TIRES, BALLAST AND WEIGHT		With Ballast	Without Ballast
Rear Tires	—No., size, ply & psi *(kPa)*	Four 20.8-34; 8; 16 *(110)*	Four 20.8-34; 8; 16 *(110)*
Ballast	—Liquid (each)	None	None
	—Effect of front ballast (each)	–102 lb *(–46 kg)*	None
Front Tires	—No., size, ply & psi *(kPa)*	Four 20.8-34; 8; 16 *(110)*	Four 20.8-34; 8; 16 *(110)*
Ballast	—Liquid (each inner)	1010 lb *(458 kg)*	None
	—Effect of front ballast (each)	327 lb *(149 kg)*	None
Height of drawbar		18.5 in *(470 mm)*	18.5 in *(470 mm)*
Static weight with operator—Rear		9860 lb *(4473 kg)*	10270 lb *(4658 kg)*
—Front		15370 lb *(6972 kg)*	12040 lb *(5461 kg)*
—Total		25230 lb *(11445 kg)*	22310 lb *(10120 kg)*

(11.66 m) left 459″ *(11.66 m)* with singles, right 384″ *(9.75 m)* left 384″ *(9.75 m)* **Power take-off** 1000 rpm at 2200 engine rpm.

REPAIRS and ADJUSTMENTS: No repairs or adjustments.

REMARKS: All test results were determined from observed data obtained in accordance with SAE and ASAE test code or official Nebraska test procedure. Temperature at injection pump return was 187°F *(86.3°C)*. Eight gears were chosen between 15% slip and 10 mph *(16.1 km/h)*.

We, the undersigned, certify that this is a true and correct report of official Tractor Test No. **1329.**

Report reissued. Supplemental permit for Case 4694 granted March 30, 1984.

Report reissued. Supplemental sales permit for Case International 4694 Powershift Diesel June 18, 1985.

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Case 4690 Diesel

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